SUMMARY REPORT OF PRELIMINARY ENVIRONMENTAL SAMPLING AT THE FINE ORGANICS CORPORATION FACILITY, LODI, NJ ECRA Case No. 86009

Prepared for

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C O N T E N T S

I. INTRODUCTION

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The purpose of this summary report is to discuss the preliminary findings from the chemical testing of environmental samples from the Fine Organics Corporation (FOC) facility in Lodi, New Jersey. These preliminary findings were presented and discussed with the State of New Jersey, Department of Environmental Protection, Industrial Site Evaluation Element (ISEE) during our meeting on September 2, 1987. This summary report is prepared at the request of the ISEE and documents the limited environmental sampling and chemical testing that has been conducted by ENVIRON at the site since the submission of the ECRA-2 Site Evaluation Submission in April 1986.

The work described in this report primarily relates to investigations of oil and PCB contamination at the facility. These investigations have in part been incorporated into the revised ECRA Sampling Plan which was submitted to the ISEE. This Sampling Plan is currently under review by the ISEE and final approval will hopefully be forthcoming in the near future. Over the past several months ENVIRON, at Hexcel's direction, has conducted certain investigations of the nature and potential for contamination from oil in the industrial sewer systems at the facility. This work by ENVIRON was conducted in accordance with the procedures and requirements of the New Jersey Environmental Cleanup Responsibility Act (ECRA).

This summary report of our preliminary findings is prepared to document the limited investigations by ENVIRON at the facility to date. The more substantial investigations to be conducted under the Sampling Plan will provide additional data that describe the nature of any additional chemical contamination at the facility. ENVIRON's preliminary conclusions presented herein, therefore, are subject to review and possible revision as these new data become available.

II. CHRONOLOGY OF ENVIRONMENTAL SAMPLING

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To understand the basis for the ongoing environmental testing, a brief chronology of the prior sampling at the facility and the status of the ECRA process for the facility is needed. The facility became subject to the requirements of ECRA upon its sale from Hexcel Corporation (the former owner) to Fine Organics Corporation (the current owner). The ECRA investigation is being conducted under an Administrative Consent Order, dated March 26, 1986.

A. Investigations Preceding the ECRA-2, Site Evaluation Submission

The initial environmental testing at the facility began in 1984 when limited soil borings were constructed by TenEch Environmental Engineers, Inc. around two underground fuel oil tanks. Chemical tests of soil samples from these borings indicated the presence of fuel oil, report as "oil and grease". Oil was generally found beginning at the water table (approximately four feet below ground) and to a maximum depth of eight feet where a clay layer was found. An oil recovery well was subsequently installed and oil recovery operations began.

In June 1985, Princeton Aqua Science (PAS) conducted another limited environmental investigation at the facility. This investigation included shallow soil samples in the vicinity of chemical storage and process tanks and collection of a sample from the oil recovery well for chemical analyses. The results of these analyses are summarized in table 1 and indicated the presence of volatile organic chemicals (VOCs) and total petroleum hydrocarbon (TPHC) in shallow soil and low level PCB contamination (43 mg/kg as Aroclor 1248) in oil from the oil recovery well.

TABLE 1
Summary of Sampling by Princeton Aqua Science
June '85

Sample No.	Matrix	Location	PCBs[1] (mg/kg)	TPHC (mg/kg)
PAS-40317 C1	soil	near ammonia tanks	ND	-
PAS-40318 C2	soil	near UST	ND	92
PAS-40319 C3	soil	drum storage @ bldg. 2	ND	-
PAS-40320 C4	soil	discarded equip. area	ND	-
PAS-40321 C5	soil	drum storage @ bldg. 11	ND	-
PAS-40322 C6	soil	aboveground ST @ office bldg.	ND	-
PAS-40323 C7	soil	background - east of office bldg.	ND	72
PAS-40324 C8	soil	UST leak - bldg. 1	ND	6000
PAS-40311 C10	water	pump house	ND	
PAS-40365 C11	oil	oil recovery well	43	-
PAS-40315 W-1	water	Saddle Brook - upstream	ND	-
PAS-40314 W-2	water	Saddle Brook - downstream	ND	-
PAS-40363	-	sewage swipe - bldg. 11	ND	-

[1] PCBs reported as Aroclor 1248

In August 1985, additional environmental samples were collected by PAS for chemical analyses. These samples were collected to augment the information obtained during the earlier June 1985 investigation by sampling soil at greater depth and collecting additional samples in the vicinity of the underground fuel oil tanks. The results of these analyses are summarized in table 2 and confirmed the presence of VOCs in soil above the water table and indicated that oil in the vicinity of the underground storage tanks (USTs) containing fuel oil was contaminated with low levels of PCBs. The level of PCB contamination was reported to range from 4 to 11.6 ppm in soil samples from the vicinity of the USTs. Oil, water and "wall scraping" samples were collected from the pit inside building no. 1 for analysis of PCBs. These tests indicated PCBs as high as 173 mg/kg in oil floating on water in a drain inside this pit. PCB analysis of the water and the "wall scraping" indicated 0.8 mg/kg and 62 mg/kg, respectively. Lastly, PAS collected an oil and water sample from the oil recovery well for PCB analysis. The oil was reported as 39 mg/kg and the water as 0.06 mg/l of PCBs (Aroclor 1248).

In December 1985, ENVIRON was retained to conduct an environmental investigation at the facility in order to comply with the requirements of ECRA. In preparing the ECRA Site Evaluation Submission, ENVIRON collected limited environmental samples to confirm the prior analyses by PAS. These samples included a floating oil product from the below-ground pit in building no. 1. Chemical tests of this oil indicated PCBs at 9,970 mg/kg (Aroclor 1242). An analysis of a water sample from the same pit indicated no PCBs at a detection limit of 10 µg/l. These results are summarized in table 3.

At ENVIRON's recommendation, in early 1986 FOC installed a treatment system to remove any oil and aqueous phase PCBs in the water from the pit in building no. 1. This treatment system was comprised of a dual stage diatomaceous earth and

TABLE 2
Summary of Sampling by Princeton Aqua Science
August '85

Sample No.	Matrix	Location	PCBs[1] (mg/kg)	TPHC (mg/kg)
PAS-44122 A5	soil	aboveground ST @ office bldg.	-	150
PAS-44123 A6	soil	aboveground ST @ office bldg.	-	100
PAS-44124 A7	soil	aboveground ST @ office bldg.	-	500
PAS-44119 A10	soil	aboveground ST - bldg. 1	ND	3,400
PAS-44121 A11	soil	aboveground ST - bldg. 1	10.2	12,000
PAS-44109 A12	soil	UST leak - bldg.1	11.6	12,000
PAS-44110 A13	soil	UST leak - bldg. 1	ND	5,800
PAS-44111 A14	soil	UST leak - bldg. 1	4.39	150
PAS-44401 A15	soil	drum storage area @ bldg. 11	ND	-
PAS-44189 E1	soil	gasoline - UST - rear of bldg. 11	-	3,600
PAS-44190 E2	soil	gasoline - UST - rear of bldg. 11	-	2,800
PAS-44191 E3	soil	gasoline - UST - rear of bldg. 11	-	1,700
PAS-44129 H1	seepage	wall scraping - bldg. 1 pit	62	-
PAS-44130 H3	floating product	floor water - bldg. 1 pit	173	-
PAS-44130 H3	water	floor water - bldg. 1 pit	0.8	-
PAS-43289	floating product	oil recovery well	39.1	-
	water	oil recovery well	0.06	-

[1] PCBs reported as Aroclor 1248

TABLE 3
Summary of Sampling by ENVIRON Corporation
December '85

Sample No.	Matrix	Location	PCB[1] (mg/kg)
85-1081 A,B,C	water	Pit Bldg. 1	<10 µg/l
85-1081B	oil	Pit Bldg. 1	9970
85-1081C	oil	Pit Bldg. 1	8070

[1] PCBs reported as Aroclor 1242

granulated activated carbon filter. The treated water was discharged into a floor drain which ultimately connected to the industrial sewer system. This treatment system has operated continuously since that time.

All prior chemical analyses of environmental samples by TenEch (June 1984), PAS (June and August 1985), and ENVIRON (December 1985) were included and documented in the ECRA-2, Site Evaluation Submission (SES), which was provided to the ISEE on January 15, 1986. Included in this submission was a discussion of the environmental data collected to that point as a basis for the development of a Sampling Plan, which was subsequently submitted on April 16, 1986, as Appendix 9 of the SES.

B. Investigations Following the ECRA-2, Site Evaluation Submission

During the summer of 1986, while reviewing the SES, the ISEE conducted an inspection of the facility and subsequently requested additional records and information. The ISEE also requested that an investigation be conducted to determine the nature and integrity of sewer drain systems at the facility. This testing was to include either smoke or dye tests and a review of all pertinent records or drawings. In response to this request, ENVIRON, on behalf of HEXCEL, retained the services of a subcontractor (Central Jersey Environmental Services) to conduct the required tests. The testing program was completed in December, 1986. The results of this program were incorporated into a revised Drainage System Plan (Plate 2 of the SES), which was forwarded to the ISEE.

In the course of the testing and investigation of the drainage and sewer systems at the facility, the manhole covers on the industrial sewer system in the rear yard were removed, and the manholes were inspected. Oil was observed to be floating on the water surface in manhole M1, which is located

to the rear of building no. 1. Oil was not observed in the other manholes and structures on the industrial sewer at that time.

On December 30, 1986, the oil in mahole M1 was removed by manual bailing. Approximately 75 gallons of oil and water were recovered and placed in steel drums. Several weeks thereafter, the industrial sewer system was reinspected to determine if additional oil had accumulated. At that time oil was again observed in manhole M1, but again not in the other structures on the industrial sewer onsite. Approximately 30 gallons of oil and water were removed from manhole M1 at that time.

A sample of the oil removed from the manhole in January, 1987 was retained for chemical analysis. Also, samples of oil from the pit inside building no. 1 and the oil recovery well near the abandoned USTs, were collected for chemical analyses. All three oil samples were submitted to JTC Environmental Consultants (JTC) for chemical analyses. These analyses included tests for PCBs, heavy metals, and an infrared spectra analysis for characteristic hydrocarbons, that would identify the petro-chemical nature of each oil sample. The purpose of these chemical tests was to determine if the oil, which was accumulating in the sewer, could potentially be the result of an onsite source common to one of these other two areas. Also at that time, while oil was not observed to be present in the other manholes on the industrial sewer system, ENVIRON had no data nor information that would preclude the potential for an offsite source of this oil in the industrial sewer. The results of these chemical analyses by JTC were provided to the ISEE by letter dated March 27, 1987 and are summarized in table 4.

Chemical tests for PCBs indicated concentrations of 60, 760, and 1085 mg/kg in oil samples from the oil recovery well, manhole M1, and the pit in building no. 1, respectively. The conclusion of the analyses of chemical testing of these three

TABLE 4
Summary of Sampling by ENVIRON Corporation
January '87

Sample No.	Matrix	Location	PCB[1] (mg/kg)
#1 86-0806	oil	Manhole M1	760
#2 86-0807	oil	Recovery well	60
#3 86-0808	oil	Pit Bldg. 1	1085

[1] PCBs reported as Aroclor 1242

oil samples was that the oil from manhole M1 was chemically distinctive and different from the oil samples collected from building no. 1 or the oil recovery well, which by comparison were chemically much more similar.

At ENVIRON's recommendation, Fine Organics Corporation began a program for regular (weekly) inspection of the sewer system for oil accumulation. Oil continued to be removed from manhole M1 as it accumulated by bailing and placing it in drums. This oil was subsequently transported offsite for incineration in accordance with state and federal regulations.

In April 1987, ENVIRON began an investigation at the facility to determine the extent of PCB contamination in the sewer system and in the vicinity of the boiler room in building no. 1. Sludge samples were collected from three structures on the industrial sewer system (manhole No. M3, M4, and M8) and floating oil was collected from M1 and the storm water catch basin in the rear yard (identified herein as structure CB8 which is part of the industrial sewer system). Additional oil samples were collected from drip pans, and sumps in the boiler room and from the pit in building no. 1, and soil and wood chips were collected from the floors in the boiler room. All samples were tested for TPHC and PCBs. The results of these tests were discussed with the ISEE during a site visit by the ECRA case manager (Mr. Michael Nalbone) on May 20, 1987, and are summarized in table 5. The data reports from the laboratory were subsequently submitted to the ISEE by letter dated June 18, 1987.

The results of these analyses indicated that PCBs and petroleum hydrocarbons were present along the main line of the industrial sewer system on the facility property. The concentration of PCBs (Aroclor 1242) in sediments from the industrial sewer ranged from 10 mg/kg to 240 mg/kg, with generally increasing concentrations toward the Hendrix pump

TABLE 5
Summary of Sampling by ENVIRON Corporation
April, 1987

Sample No.	Matrix	Location	PCBs[1] (mg/kg)	TPHC (mg/kg)
536A-MH01-FP01	oil	manhole M1	240[2]	-
536A-MH01-FP02	oil	manhole M1	936[2]	-
536A-MH03-SS01	sediment	manhole M3	150	299430
536A-MH04-SS01	sediment	manhole M4	240	300050
536A-MH08-SS01	sediment	manhole M8	10	17267
536A-MH08-SW01	water	manhole M3	ND	-
536A-CB08-FP01	oil	catch basin in rear yard on sewer system	498	-
536A-BD01-FP01	oil	pit in building no. 1	8630	-
536A-BR01-OIL1	floor scraping	boiler room, around hot oil system	5500	-
536A-BR02-OIL1	oil	boiler room, drip pan under hot oil system	1250	-
536A-BR03-OIL1	oil	boiler room, pit under boiler	1280	-
536A-BR04-OIL1	oil	boiler room, bucket under boiler	ND	-
536A-BR05-OIL1	wood chips	boiler room, elevated wood decking	4100	-

[1]PCBs reported as Aroclor 1248

[2]Sample no. MH01-FP01 and MH01-FP02 are split samples of floating oil

station sewer system. A chemical analysis of water entering the facility from offsite into manhole M8 indicated no PCB at a detection limit of 1.0 µg/l.

Chemical tests of oil and floor scraping samples from within the boiler room indicated the presence of PCB contamination 1) in the vicinity of the decommissioned heating oil system, 2) on an overhead wooden flooring, and 3) within subsurface concrete pits beneath the boilers. In addition, a chemical analyses of oil samples from the pit in building no. 1, manhole M1 and catch basin CB8 reconfirmed the prior findings of PCB contamination in the floating oil product.

During our meeting at the facility with the ISEE on May 20, 1987, at which these test results were discussed, HEXCEL proposed an aggressive program for interim containment of identified onsite PCB contamination, and additional investigations of the extent of PCBs onsite and in the sewer system. The onsite containment program included construction of wooden enclosures and temporary flooring over visibly stained areas within the boiler room; posting of warning signs; restricting worker access in areas where PCB contamination had been identified; briefing of all plant personnel regarding the nature of contamination and appropriate health and safety precautions; retaining of a PCB cleanup/response contractor; and decontamination of the former hot oil heating system.

Secondly, additional sampling and testing for oil and PCBs beneath the boiler room were also proposed. This sampling and testing would involve the construction of three soil borings through the floor of the boiler room, to approximately the elevation of the base of the pit in building no. 1, and two additional soil borings outside the boiler room between the building wall and Molnar Road. These borings would be used to collect soil samples for analysis of TPHCs, PCBs, and selectively, VOCs. In addition, it was proposed that one or more of the borings through the floor of the boiler room would

be completed as small diameter monitoring wells. Due to the low overhead clearance, it was not deemed practical to construct these borings with a motorized power auger drilling rig. This limitation prevented the installation of the normal four inch diameter monitoring well required by the ISEE.

Lastly, additional sampling of sediments from the sewer system downstream (offsite) from the facility was proposed. This included samples from manholes along the sewer system and from the Hendrix pump station, which is located approximately two blocks downstream (south) from the facility. All sediment samples from the sewer system would be tested for TPHC and PCBs. In addition, two sediment samples were proposed to be collected from Saddle Brook in the vicinity of the outfall of the storm drainage system which crosses the facility property. This outfall is located immediately adjacent to the Hendrix pump station.

It was our understanding as a result of our meeting on May 20, 1987 that the ISEE case manager agreed that ENVIRON and HEXCEL should proceed with these additional onsite containment measures and environmental testing programs. An addendum to the ECRA Sampling Plan (Appendix 9 of the SES) was prepared to describe the testing proposed to be conducted in and around the boiler room. This addendum was submitted to the ISEE by letter dated June 18, 1987.

On June 16 and 24-25, 1987, ENVIRON completed this sampling program offsite in the industrial sewer system and onsite in the vicinity of the boiler room. Soil samples were collected in accordance with our discussions during our meeting on May 20, 1987 and the followup written correspondence with one exception. Only two borings (nos. 1502 and 1503) could be constructed within the boiler room. Drill bit refusal occurred in boring no. 1501 at a depth of approximately 5 feet below the floor of the boiler room. At that point, the soil beneath the

boiler room was dry and did not appear to be visibly contaminated. Therefore, no samples were collected from this boring for chemical analyses.

Boring nos. 1502 and 1503 were completed as small diameter (1½ inch ID) PVC monitoring wells. Following construction, water and oil were observed to be inflowing to these wells. The thickness of the oil layer was not determined at that time; an oil sample was, however, recovered from the well casing in boring no. 1502 for PCB analysis. This analysis indicated PCBs at a concentration of 10,940 ppm which is generally consistent with the concentrations that had previously been measured in oil samples within the pit inside building no. 1. Boring no. 1502 was constructed approximately six feet behind the pit wall.

The results of the chemical analyses (see table 6) of the samples collected in the vicinity of the boiler room on June 24-25, 1987 indicated that oil was present on the water table (at a depth of approximately 8 feet beneath the floor) and within the sandy soil that comprises the water table unit. At a depth of approximately 12 feet below the floor of the boiler room, a clay layer was encountered during the drilling. Drilling was halted at this point and did not pierce through the clay. Oil was observed to be present in the sandy sediments overlying this clay up to the water table. Subsequent chemical tests indicated TPHC in the sandy soils ranging from less than 100 ppm to 2,875 ppm and PCBs ranging from less than 3 ppm to 150 ppm. TPHC and PCB concentrations were highest at the water table and decreased with depth. A sample from the top of the clay layer, which underlies the water table unit, indicated much lower concentrations of TPHC (153 mg/kg) and PCBs (14 mg/kg) than in the overlying sandy alluvium.

The sludge and sediment samples collected from the industrial sewer system offsite included a sample from a manhole on the property of Napp Chemical Co., which is

TABLE 6
Summary of Sampling by ENVIRON Corporation
June '87

Sample No.	Matrix	Location	PCBs[1] (mg/kg)	TPHC (mg/kg)
WWHS-SS01	Sediment	Wet well-Hendrix Pump Sta.	7660	85,000
WWHS-SS02	Sediment	Wet well-Hendrix Pump Sta.	1420	64,200
SDSR-SS01	Sediment	Saddle Brook @ storm drain outfall	0.3	980
SDSR-SS01 Dup	Sediment	Saddle Brook @ storm drain outfall	0.3	-
SDSR-SS02	Sediment	Saddle Brook @ storm drain outfall	2.4	18,600
MHNC-SS01	Sediment	Manhole on ind. sewer-Napp Chemical	490[2]	16,675
1502-SB01	soil	Boiler room-bldg. 1 @ 6.0-7.0 ft.	130	2,875
1502-SB02	soil	Boiler room-bldg. 1 @ 11.0-11.5 ft.	51/22.3*	485/70*
1502-SB03	soil	Boiler room-bldg. 1 @ 13.5-14.0 ft.	14	153
1503-SB01	soil	Boiler room-bldg. 1 @ 8.5-9.0 ft.	<20	4,575
1503-SB02	soil	Boiler room-bldg. 1 @ 11.5-12.0 ft.	<3	<100
1504-SB01	soil	Outside south wall-boiler room @ 3.5-4.0 ft.	26	<100
1505-SB01	soil	Outside south wall-boiler room @ 4.0-4.5 ft.	150	847
1502-FP01	oil	Boiler room-bldg. 1	10,940	-

*Split Sample

[1]PCBs reported as Aroclor 1248

[2]PCBs reported as Aroclor 1260

immediately south of the FOC facility across Molnar Road, and two samples from the wetwell at the Hendrix wastewater pump station. The samples at the pump station were collected immediately in front of the industrial sewer and sanitary sewer outfalls upstream from the trash bar and were comprised of sediments from the bottom of the wetwell.

The results of the chemical analyses of these samples indicated that PCBs are present within the sediments in the industrial sewer system down to and including the Hendrix pump station. The PCB detected in the sediment sample from the manhole on the Napp Chemical Co. property was identified as Aroclor 1260, which is distinctly different than the Aroclors (1242 and 1248) which have been detected in previous samples at the FOC facility. The concentration of PCBs in this sample was higher (490 mg/kg) than concentrations detected in onsite (FOC) sediment samples from the industrial sewer system. Both sediment samples from the Hendrix pump station wetwell contained PCBs. The sediment sample at the outfall of the industrial sewer system was reported as 7660 mg/kg and the sample at the outfall of the sanitary sewer at 1420 mg/kg. Both samples reported Aroclor 1242.

During the collection of sediment samples from the offsite industrial sewer system, and in particular at the Hendrix pump station, no floating oil was observed on the water in the wet well. On several other occasions throughout these field investigations, the Hendrix pump station has been inspected and no floating oil has been observed in the wetwell.

The sediment samples which were collected from Saddle Brook at the outfall from the storm drain system detected low concentrations 0.3 and 2.4 mg/kg of PCBs (Aroclor 1242). The NJDEP has not proposed specific criteria for PCBs in stream sediment samples; these concentrations are quite low in comparison to concentrations detected onsite in soil or sludges from the sewer system.

All of the results of the chemical analyses of samples collected onsite around the boiler room and offsite in the industrial sewer system and Saddle Brook during June, 1987 were reported to the ISEE during our meeting on September 2, 1987. At that meeting a copy of the laboratory reports for the June, 1987 samples and a description of sample locations were provided to the ISEE.

III. INDUSTRIAL SEWER/STORM DRAINAGE SYSTEM ANALYSES

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As previously described, in the Fall of 1986, ENVIRON undertook a detailed program for assessment of the industrial sewer and storm drainage systems on the FOC facility. This program included a reconstruction of drainage systems from available plans and records, and extensive dye testing of drains in sewers to document their integrity and interconnection. This program culminated in the compilation of a Drainage System Plan (Plate 2 of the ECRA submission) which was last revised and submitted to the ISEE in a letter dated September 11, 1987, and is included in this report as Attachment No. 1.

The primary storm drainage system which traverses the FOC facility is enclosed in a 42 to 54-inch pipe. The storm drainage system enters the facility along the northeast boundary from beneath the off-ramp from Route 46 and flows to the southwest and south, eventually exiting the facility boundary under Molnar Road. This storm drain, according to the plumbing inspector of the Borough of Lodi, encloses a drainage system known locally as Lodi Creek. The storm drain eventually outfalls to the south of the facility into Saddle Brook, adjacent to the Hendrix pump station.

The storm drainage system has been inspected on a number of occassions at two manholes M2 and M6 at the facility. Each time, the system has been observed to be clean of any sediment accumulation, the apparent result of a relatively high flow velocity. Water was observed to be discharging through the drain system on several occasions, even following extended periods of no rainfall.

A second drainage pipe enters the property along the northeast boundary. This pipe, according to the plumbing inspector of the Borough of Lodi, transports storm water runoff, and can first be observed on the facility at manhole

M8. In addition, an onsite stormwater catch basin (no. CB6) discharges into manhole M8 from a paved area in the vicinity of the lab and locker room. In order to confirm that the water entering manhole M8 from the northeast was stormwater rather than industrial wastewater, ENVIRON collected a sample (536A-MH08-SW01) for chemical analysis. This analysis indicated the presence of low concentrations of total VOCs (157 µg/l) and no detection of semivolatile organic chemicals or PCBs. These results suggest that the water entering manhole M8 is stormwater, as was reported to ENVIRON by the plumbing inspector of the Borough of Lodi, and does not contain industrial wastewater. A 24-inch pipe interconnection has been previously constructed between manhole M8 and M6. This interconnection allows water entering manhole M8 to flow into the storm drainage system which ultimately traverses the property and discharges into Saddle Brook.

A third pipe exits manhole M8 and connects to manhole M4 and subsequently manhole M3, which is part of the industrial sewer system. Inspection of the portion of the industrial sewer system between manhole M3 and manhole M8 indicated that this pipe is virtually completely clogged with silt and sediment. No water was observed in manhole M4 during the initial inspections conducted of the sewer system during the dye testing program. This suggested that the blockage of the pipes on the upper part of the industrial sewer system, beginning at manhole M8, prevents storm water from discharging into the sewer from the northeast through the aforementioned storm drainage systems. The dye testing program further confirmed that the first point of inflow to industrial wastewater at the FOC facility is at manhole M3, and under normal low-flow conditions, this process wastewater discharges to the south through the industrial sewer system into the Hendrix pump station. The observed lack of flow in manhole M4 during the initial inspection and dye testing of the industrial

sewer system, and the documentation of manhole M3 as the first point of inflow of industrial wastewater at the FOC facility (a point which is downstream of manhole M4) led to a preliminary conclusion that the industrial sewer and storm drainage systems on the facility are not normally interconnected as reported in our earlier letter of March 25, 1987 to the ISEE.

During a subsequent inspection of the industrial sewer system on April 14, 1987, concurrent with the aforementioned sampling of sediments from the sewer system, water was observed to be flowing to the north (upstream) in the industrial sewer system at manhole M4. A dye test conducted on that day confirmed that water in the industrial sewer was flowing from manhole M4 to manhole M8 at which point it entered the storm drainage system.

The reversal of flow in the industrial sewer, causing process wastewater to flow upstream, may be the result of surcharging in the industrial sewer system further downstream due to the blockage from sediment. This reversal of flow has been observed on only one occasion throughout the period of sewer inspection and testing during 1987, and is likely a short-term condition that occurs during periods of high inflow into the sewer system. This was reported to the ISEE Case Manager during our meeting on May 20, 1987 and in a letter dated June 18, 1987.

Inspection of the industrial sewer further downstream suggests that the sewer pipes are substantially clogged with sediment to an extent that may inhibit the free discharge of process wastewater downstream through the sewer system. This condition has likely contributed in a surcharging of the sewer system at manhole M1 and catch basin CB8. During ENVIRON's inspections of these structures, water has always been observed above the crown of both the inflow and outflow pipes. The surcharging of these structures has caused manhole M1 and catch basin CB8 to act as traps for the oil which is accumulating in

the sewer system on the FOC facility. In the short-term, this condition substantially controls any release of oil through the sewer system offsite.

A second interconnection between the industrial sewer and storm drainage system was previously constructed between catch basin CB8 and manhole M2. This interconnection was closed at some point in the past. Inspection of this interconnection indicates that the plug is tight and no wastewater currently discharges from catch basin CB8 into the sewer system through this interconnection.

From manhole M1, which is the last downstream structure on the industrial sewer system on the FOC property, the industrial sewer discharges to the south through the property of Napp Chemical Co. and ultimately to the Hendrix pump station. The continuous connection of the onsite industrial sewer to the pump station was documented by a dye test which was conducted on April 7, 1987 by ENVIRON.

IV. PRELIMINARY CONCLUSIONS BASED ON CURRENT ENVIRONMENTAL DATA

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Based on the environmental data which have been collected by TenEch, Princeton AquaScience, and ENVIRON over a period of three years, all of which have been provided to the ISEE in the ECRA-2 Site Evaluation Submission and subsequent submissions by ENVIRON as described in this letter, the following preliminary conclusions can be drawn regarding the extent and nature of contamination with respect to oil and PCBs at the FOC facility and adjoining industrial sewer.

- Oil has been detected in soil samples and monitoring wells beneath the boiler room and around the adjoining abandoned underground fuel tanks. The oil is present at the water table and within a sandy alluvium, approximately four feet thick, which overlies a clay layer. The vertical extent of oil in the soil and ground water, and in particular whether oil is present within or beneath this clay layer, cannot be determined from current data but lower concentrations of oil were detected in the clay than in the overlying sandy alluvium. The oil within the water table unit beneath the boiler room is seeping in small quantities into the pit in the adjoining building no. 1. This seepage is likely the result of concurrent movement with ground water through cracks or joints in the pit wall.

- Chemical analyses of oil in the zone of saturation beneath the boiler room indicates the presence of PCBs (Aroclor 1242) at concentrations ranging from 39 to 10940 mg/kg. PCBs have also been detected in soil samples beneath the boiler room beginning at the

water table and throughout the zone of saturation to the underlying clay layer. The concentration of PCBs in soil in the zone of saturation decreases with depth from 150 mg/kg at the water table to 14 mg/kg at the top of the underlying clay unit. The PCBs in these soils appear to be present concurrent with oil, which is the likely source of these materials.

- Oil has been observed to be accumulating in manhole M1 and the catch basin CB8 on the industrial sewer system in the rear of the FOC property. Oil from these two structures has been tested and found to be contaminated with PCBs, ranging from 240 to 936 mg/kg. The source of this oil is currently unknown.

- PCBs have been detected in sediment samples from manholes on the industrial sewer system on the FOC property ranging from a low of 10 mg/kg at the upstream end of the sewer (manhole M8) to a high of 240 ppm at manhole M4. While oil has never been observed to be accumulating in manholes M3, M4, or M8, a comparison of the ratio of PCB to TPHC in the sediment samples from these manholes suggests that the PCBs are present in a petroleum hydrocarbon material at approximately the same concentration as the oil in manhole M1.

- Chemical data and observations at the site including 1) the virtual blockage of the industrial sewer system from manhole M8 to manhole M3 by sediment and sludge, 2) the substantially lower PCB concentration at manhole M8 than in comparison to concentrations further downstream on the industrial sewer system, 3) the reported no-detection of PCBs in a water sample

collected from the storm water inflow into manhole M8, and 4) the predominant accumulation of oil in manhole M1 and structure CB8 which are located at the downstream end of the industrial sewer system on the property, suggest that the oil that is observed in the sewer system is likely from an onsite source. The current physical evidence and chemical data are not conclusive in pinpointing the precise source of this oil. Inspection of in-house plumbing and industrial sewer discharges, which enter the sewer system at manhole M3, however, suggests that oil is not entering the sewer system through the permitted discharge into the industrial wastewater.

- Chemical tests for PCBs and TPHC in the offsite sewer system indicates that PCBs are present downstream to and including the Hendrix pump station. The finding of Aroclor 1260 in the manhole on the property of Napp Chemical Co. and the generally increasing levels of PCB contamination downstream from the FOC facility may suggest that another downstream source of PCBs may have discharged into the industrial sewer system. The chemical tests which have been conducted to date on these samples are, however, not conclusive in pinpointing the source of these materials. Physical evidence, primarily being the lack of any observed floating oil in the wet well at the Hendrix pump station, suggests that the PCB contaminated oils which have been observed in the industrial sewer at the FOC facility are not currently being released offsite through the sewer system.

- PCB materials are not currently used in any manner at the FOC facility and PCB contamination from the ongoing operation is not an issue.

V. PROPOSED INTERIM REMEDIAL MEASURES

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During our meeting on September 2, 1987 with ISEE, ENVIRON described certain interim remedial measures that have been undertaken at the FOC facility to limit the exposure of workers to identified areas of contamination and to mitigate any offsite release of oils or PCBs through the sewer system. With regard to the sewer system, to date this program has involved regular inspection and bailing of oil from manhole M8 and structure CB8 followed more recently by the installation and regular replacement of petroleum absorbent pillows for collection of floating oil. Over the Spring and Summer of 1987, the rate of inflow of oil to the sewer system has diminished, and the use of spill pillows for collection and removal of the small quantities of oil that continue to accumulate appears to be effective. Until such time as the source of the oil which is accumulating in the sewer system can be identified and eliminated, this program of regular inspection and use of spill pillows for collection of oil will continue.

Drilling and chemical testing conducted at the facility to date has identified the area beneath the boiler room, and adjoining the pit wall in building no. 1, as a known source of oil and PCB contamination. At present, no direct interconnection between this area and the industrial sewer system, that would explain how oil in this area would accumulate in the industrial sewer, has been identified. Since it is clear that removal of this contaminated oil will likely be required as part of the ECRA clean-up of the facility, and since this oil is the only confirmed source identified at the site to date, a program for interim containment of PCBs and removal of this oil was proposed during our meeting on September 2, 1987. This program would involve the installation of drains through the pit wall in building no. 1 beneath the

boiler room to lower the level of the water table and remove oil from the water table unit. This would be accomplished through the installation of several drain holes with horizontal well screens behind the pit wall. These drains would be connected through a pipe manifold into a collection tank. The water and oil collected from this drain system would be treated by removal of the oil from the water followed by a polishing stage to remove any aqueous phase PCBs. After testing to confirm the lack of PCBs in the effluent, the water would then be discharged through the industrial sewer system under a permit from the Passaic Valley Sewer Commission (PVSC).

Subsequent to our meeting with the ISEE on September 2, 1987, a followup meeting was held on September 30, 1987 with the ISEE and the PVSC to discuss the preliminary findings with regard to the industrial sewer system. At the end of this meeting, the PVSC indicated its willingness to work with the facility and ENVIRON to review and consider a modification, as necessary, to the current discharge permit to allow the onsite treatment and subsequent discharge to the industrial sewer of these contaminated ground waters.

Beginning in early 1986, the ground water seepage and small amount of oil that has accumulated in the pit in building no. 1 have been treated before discharge into the industrial sewer system. This treatment is comprised of a dual stage diatomaceous earth followed by granulated activated carbon filter system. This treatment system has been in place and operated continuously, with regular changing of the filter media, since early 1986. During the meeting with the PVSC and the ISEE on September 30, 1987, the PVSC requested that the discharge of the water from this treatment system be tested prior to discharge to demonstrate the lack of any detected aqueous phase PCBs. Consequently, beginning September 30, 1987, all water that is treated in this system will be retained in a storage tank and tested before discharge. These test

results will be retained at the FOC facility and provided to the ISEE and PVSC at their request. It is anticipated that upgrading and possible expansion of this initial treatment system will be used to treat the ground water and oil which is recovered from the ground water drainage system from beneath the boiler room. The final design for a treatment system for this water has not yet been completed but further details will be provided to the ISEE and PVSC when available.

As previously described, interim measures have already been taken to reduce exposures to PCBs by workers at the facility. These interim measures have included the enclosure of the hot oil system and covering of visibly stained floors within the boiler room by plywood. In addition, access to known PCB contaminated areas has been strictly restricted to only a few plant personnel on an "as-needed" basis. Warning signs have been posted in areas known to be contaminated and all plant personnel have been briefed regarding appropriate access restrictions and health and safety procedures.

In order to further define any potential exposure to plant personnel from PCB contamination, a Certified Industrial Hygienist has been retained by Fine Organics Corporation to conduct a worker safety survey at the facility. This survey will involve the collection of air and wipe samples from within the boiler room and building no. 1, which are areas of identified PCB contamination. Also, included in this survey will be a review of plant health and safety procedures.

VI. RELATIONSHIP TO ONGOING ECRA INVESTIGATIONS

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The work described in this report has been conducted in advance of formal written approval by the ISEE of the ECRA Sampling Plan which was originally submitted in April, 1986 and last revised on June 18, 1987. Nonetheless, ENVIRON and HEXCEL believe that this work, if not done to date, would have eventually been required under ECRA and further that there are compelling reasons for an expedited investigation of the potential for onsite contamination by oil and PCBs in the sewer system pending the ISEE's continual review of the proposed ECRA Sampling Plan.

This work by ENVIRON has been conducted in anticipation of its eventual incorporation into the report of findings from the ECRA investigation, and all sample collection procedures and laboratory analyses have been conducted with strict adherence to ECRA program requirements. We have endeavored to the extent possible to involve the ISEE in this process by prompt verbal and written reporting of all chemical test results and frequent discussions with the case manager and staff geologist about our plans for further investigation. As a result of these investigations, substantial progress has been made in understanding the nature of PCB and oil contamination at the facility and in reducing the potential for any offsite release.